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The Pattern of Health Care Utilization of Elderly People with Arthritic Pain in the Hip or Knee

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***Objective*: The aim of the study was to determine the pattern of health care utilization of people aged 55–74 years with arthritic pain in the knee or hip.**

***Design*: People with current pain were identified in a population-based study. A filter model was used to describe the pattern of health care utilization of people who presented as patients at different levels (GPs or specialist) of the health care system in the Netherlands.**

***Setting*: The study was carried out in the district of Ommoord in Rotterdam in an age- and gender-representative sample of 831 (response 83%; $n = 691$) people.**

***Study participants*: A group of 186 people with current pain was identified. They completed a questionnaire and were interviewed.**

***Main outcome measures*: Background variables, illness-related variables (including radiological osteoarthritis), and self-reported diagnoses were described and compared for attenders and non-attenders of GPs and specialists. A reference group of patients of GPs was used to determine the validity and generalizability of the findings.**

***Results*: Eighty-two per cent consulted a GP (passed filter 1). In 69% of the GP attenders, 'arthritis' was identified (passed filter 2), and 65% of them attended a specialist (passed filter 3). People who did not pass the various filters were different from those who did with respect to the body mass index (lower; OR 1.24), the chronicity of pain (less chronic pain; OR 4.9) and attendance of a physiotherapist (lower; OR 5.6). The chronicity of pain seems of more importance in determining the health care utilization pattern than the severity of pain, the level of disability or the presence of radiological osteoarthritis. We suggest that health promotion interventions could increase the self-management ability of patients and could lower costs. © 1997 Elsevier Science Ltd. All rights reserved**

Key words: Osteoarthritis, pain, aged, health care.

INTRODUCTION

Osteoarthritis (OA) is a frequent cause of pain in the hip or knee and of locomotor disability in an elderly population [1–4]. The total prevalence of osteoarthritis is high [5]. In 1990, in the Netherlands (total population approximately 15 million), an estimated 773 900 people suffered from arthritis, as determined on the basis of there being radiological evidence of arthritis (ROA) [6]. About 30–45% of people with ROA complain of symptoms such as pain and stiffness ("symptomatic OA") [7–9]. There are people who have symptomatic OA without radiological evidence, and vice versa.

OA is also the most common locomotor disorder encountered in general practice in the Netherlands [10]. In the United States (US), OA is the most common arthritic disease, affecting more than 12% of the adult population. It is managed largely by primary care physicians [11]. Usually, OA patients in the Netherlands are aged 60 or older, and in most age categories, more women than men visit their GP for OA-related complaints. Fifty-seven per cent of people with arthritis contact their GP two or three times a year for their arthritis, irrespective of their age [12]. About 30% of patients with repeated complaints of pain in the hip or knee (mostly caused by OA) are referred to an orthopedic surgeon or rheumatologist [13]. Only a few patients with OA will ultimately have joint replacements. In the US, people with OA visit their physician 3.5 times (SD 5.3) times per year for their condition [14]. The economic impact of arthritic diseases (including OA) in the US, as assessed by expenditure for health care and lost wages, has been estimated at 1% of the gross national product, and direct and medical costs were estimated to represent about 8% of all costs for all diseases [15]. A study on family practice in Canada indicated that arthritis patients consumed health care services at costs 78% higher than the average expenditures in the same community [16]. No studies were found that examined the pattern of health care utilization of older people with pain symptoms at different levels of the health care system.

This article describes the characteristics of a group of

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people aged 55–74 years with current pain in the hip or knee (symptoms of possible OA) in a population-based study. The aim was to gain an insight into the differences and similarities in background variables and illness-related variables, such as pain and disability, of the people with current pain attending or not attending health care facilities. To structure the description of the pattern of care, we have adapted the filter model of Goldberg and Huxley [17], which was developed for the field of mental illness (Fig. 1). The first level is the prevalence in the community of current pain in the hip or knee (level 1). A number of these people show "illness behavior" (in this context "illness behavior" refers to "forms of personal behaviour that emerge when the reality of having a disease is internalized and experienced by an individual" [18]) and attend their GP (level 2). These people have passed the first "filter". Some of these people are diagnosed as suffering from arthritis (level 3) and pass the second filter. Patients with arthritis who are referred by their GP to a specialist are in level 4, having passed the third filter. We assumed that relatively older people with more severe pain and serious disabilities would have passed the filters more easily than people with less severe complaints.

In an age- and gender-representative sample, 186 people with current pain were identified (the study population) and asked about their pain and disabilities, their attendance of GP, physiotherapist and specialist, and the diagnosis given them. People who passed a filter were compared with people who did not. Because the diagnoses of the study population were based on self-report, the data of level 3 were validated and tested for generalizability by comparison with data for a reference group that was diagnosed by GPs [19].

THE STUDY SETTING

The study was carried out in collaboration with the "Rotterdam study" in the district of Ommoord in Rotterdam [20]. The aim of the Rotterdam study is to investigate determinants of disease occurrence and progression in people older than 55 years (total $n = 10\,275$; response 7983 in a 3-year period). In 1991, a sub-study [21] was carried out on locomotor disability, joint pain and ROA (on an age- and gender-representative sub-sample of 2895, 2178 of whom were aged 55–74 years). Radiographs of hips and knees were taken for all respondents. In 1993, an age- and gender-representative sub-sample (thus including subjects with and without pain) of the last study was formed ($n = 831$). Most of the people in the district of Ommoord are patients of one of the 13 GPs (working in four primary health care units) in that area.

METHODS

Inclusion criteria were the presence of an X-ray of the hips and knees (from the earlier study) that had been scored independently by two trained assessors (note: the assessors were blind to all respondents' variables) according to the criteria of Kellgren and Lawrence [22], and age from 55 to 74 years. Exclusion criteria were participation in one of the other sub-studies of the Rotterdam study in 1993 (these studies were not related to musculoskeletal complaints), the occurrence of severe cognitive problems and living in a home for the elderly. From the earlier study in Rotterdam, the number of subjects with "pain in the hip or knee in last month" was known for two distinct occasions in 1991: at the time of an interview at home (response 83%) and at the time of a medical examination at the special research center of the Rotterdam study (response 95%) several weeks later. In February 1993, all 831 respondents were asked to complete a short questionnaire about pain in the hip or knee in the last month (response 83%, $n = 691$). Combination of the three answers made it possible to identify groups of subjects who reported pain on one, two or three occasions (defined as sporadic, episodic and chronic pain,

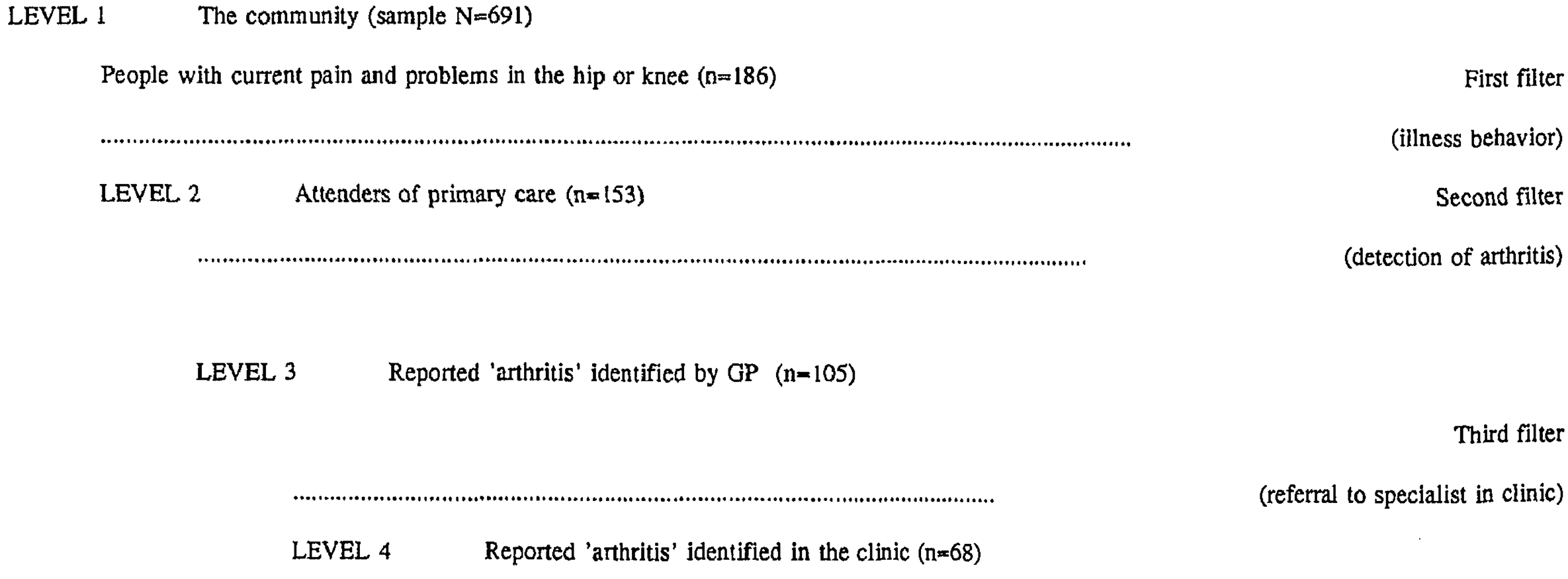

FIGURE 1. The filter model (from Goldberg and Huxley [17]) for the pattern in health care utilization applied to arthritis of the hip or knee in community living people aged 55–74 years with current pain in the hip or knee.

respectively, total $n=276$). All these subjects were invited to participate in the present study. The respondents (response = 85%; $n=234$) completed a series of self-administered questionnaires and were interviewed at home 2 weeks later. Of this group, 186 people suffered from pain in the last month before the interview. These people were included in the present study.

Definition and diagnosis of OA

According to the classification criteria of Altman *et al.* (used by most rheumatologists), OA of the knee and the hip is defined if pain and ROA are present [23,24]. OA of the knee without the availability of a radiograph also can be defined if pain is present and at least three of the six following criteria are met: age ≥ 50 years, morning stiffness ≤ 30 minutes, crepitus, bony tenderness, bony enlargement and no palpable warmth. During the interview, the respondents were asked about the clinical diagnoses that they had received from their GP or specialist (if they had attended for these complaints). Their self-reported diagnoses: "arthrosis", "arthritis", "rheumatism", "wear-and-tear" and "aging" were recoded as "reported arthritis diagnosis present". Besides a self-reported diagnosis, a question about the possible cause of the complaints was included. Furthermore, questions were included about whether the subject had ever attended alternative therapists or physiotherapists for these complaints.

Measurements

Radiographs. Classification of radiographs of the hips and knees was based on the standard Kellgren criteria (0 = no signs, 1 = doubtful, 2 = mild, 3 = moderate, 4 = severe). Grade 2 or higher was regarded as ROA.

Use of painkillers. Respondents were asked whether or not they had regularly used painkillers (unspecified) in the last months.

Assessment of pain chronicity and pain severity. Classification of the subjects into groups with sporadic, episodic and chronic pain (as mentioned above) was used to obtain an indication of the chronicity of the pain symptoms. A 15-cm Visual Analogue Scale was used to indicate pain severity in the hip or knee in the week before the subjects completed the questionnaire. Results are presented as scores ranging from 0 (no pain present) to 100% (unbearable pain). Because pain in the hip or knee is sometimes difficult to distinguish, we took the scores for the two joints together.

Assessment of disability. Disability was assessed by the Sickness Impact Profile (SIP), a standardized questionnaire of 136 statements, ordered in 12 areas of daily living and designed as a measure of dysfunction in everyday activities due to sickness [25]. Each statement describes a certain dysfunction in a daily activity in one of the 12 areas. Respondents only have to mark statements that are appropriate to their situation and related to their health. Each marked statement has a weighted score. Indices of a "physical" and "psychosocial" dimension can be calculated (the theoretical maximum is 100%). The reliability and validity of the SIP for use in a Dutch population are good [26]. Examples of statements are: "I sleep or doze more during the day" (Sleep/rest), "I do not do any of the shopping that I would usually do" (Household), "I stay in one room" (Mobility), "my genderual activity is decreased" (Social interaction), "I do not walk at all" (Walking). "Physical" disability is defined as a weighted sum score of the areas "Personal Care", "Mobility" and "Walking". The "psychosocial" disability score is defined as the weighted sum of "Emotions", "Social Interactions", "Cognitive function" and "Communication".

Extra mobility problems. If respondents had other complaints affecting mobility and physical function besides current pain in the hip or knee, the term "extra mobility problems" was used.

The reference group

Patients attending GPs in other parts of the Netherlands ($n=109$, age 55–74 years) for OA were used as a reference group. This group is a subset of a larger group of patients with OA that was recruited from 40 Dutch general practices for a randomized clinical trial in which two non-steroidal anti-inflammatory drugs (NSAIDs) were compared. Inclusion criteria were a diagnosis of OA that led to the prescription of NSAIDs, exclusion of other possible arthritic diagnoses by blood tests (Erythrocyte Sedimentation Rate (ESR), rheumatoid factor and uric acid), and no current attendance of a physiotherapist. Details of the total study group are described elsewhere [27,28]. OA was defined according to the criteria of the International Classification of Health Problems in Primary Care [29]. These criteria are very similar to those of Altman [23,24]. The diagnosis of OA in the reference group is based on at least one of the following: characteristic radiological appearance, Heberden's nodes (on the hands), joint disorder of at least 3 months' duration, with no constitutional symptoms and at least three of the following: (1) irregular swelling, (2) crepitation, (3) stiffness or limitation of movement, (4) normal ESR, rheumatoid tests and uric acid, and (5) patient over 40 years of age. Information on pain severity, use of painkillers, and assessment of disability with the SIP was gathered by the same procedure as for the study population. In fact, this was the only available study on a group of patients with OA in the Netherlands that included the same pain and disability measurements as the present study. We have to emphasize that in the present study, only self-reported diagnoses and radiographic scores were available.

Statistical methods

To assess the disability scores, we used the weighted scores valid for use in the Netherlands. Chi-square tests were used to compare nominal variables, and an analysis of (co)variance (ANOVA) was used to compare numerical variables. For multivariate comparisons, stepwise logistic regression analyses were used (P—in = 0.05, P—out = 0.10). Odds ratios with their 95% confidence intervals (CI) are given. Data were analysed with SPSS-X [30]. The level of statistical significance was 0.05 (alpha). Because 13 tests were carried out simultaneously to compare two groups, a Bonferroni correction [31] was made. Only differences with $P < 0.004$ were considered not to be due to chance.

RESULTS

A considerable proportion (80%, $n = 186$) of respondents with pain symptoms ($n = 234$) reported pain in the month before the interview and were asked about their use of health care services. This group formed the first level of the filter model (Fig. 1).

Level 1: current pain in the hip or knee in the community

The features of this group are given in Table 1. The mean age was 65 years. Most patients were women, had a secondary education and lived together with a partner. About half of the group reported extra mobility problems, and a quarter had chronic pain (pain on three separate occasions in the last 3 years). Eighty-two people (44%) had ROA in one of the knees or hips. Ninety-seven people (52%) had attended a physiotherapist for these complaints. Thirty-five people (19%) took painkillers on a regular basis.

Twenty-nine people (16%) did not consult a doctor or anyone else about their pain and problems with the hip or knee, two people (1%) consulted "someone else" (alternative therapist) and two people (1%) consulted a specialist without referral by a GP. Non-attenders (see Table 2) had a lower body mass index (BMI) than attenders ($F = 9.7$, $P = 0.002$). Also, indications were found for a lower usage of painkillers ($\chi^2 = 4.3$, df = 1, $P = 0.04$) and a higher education ($\chi^2 = 6.7$, df = 2, $P = 0.03$) in non-attending women, but not in men. A stepwise logistic regression analysis with attendance of the GP as dependent variable and age, gender, marital status, education, BMI, extra mobility problems, ROA, use of painkillers, pain chronicity, and physical and psychosocial disability as independent variables was carried out. Because none of the non-attenders had physiotherapy, we omitted this variable in the analysis. BMI was the only significant predictor with an odds ratio of 1.24 (CI = 1.15–1.33).

Level 2: respondents attending the GP

Of the total group of 186 respondents with current pain, 153 respondents (82%) had consulted a GP for these complaints. The characteristics of this group are also given in Table 1. Thirty-three people (22%) used painkillers on a regular basis. Ninety-six people (63%) attended a physiotherapist, 92 people (60%) said that they were referred to a specialist, three people (2%) reported visiting an acupuncturist, and one person visited a homeopath. Forty-eight people (31%) who did not pass the level 2 filter (no reported diagnosis of "arthritis") had significantly less chronic pain than the people who passed

TABLE 1. Demographics and characteristics of groups in the filter model (community living subjects aged 55–74 years with current pain in the hip or knee)

	Level 1: current pain	Level 2: visit GP	Level 3: reported diagnosis "arthritis"	Level 4: visit specialist
Number	186	153	105	68
Age in years (mean and SD)	65.0 (5.6)	65.0 (5.6)	65.3 (5.3)	65.6 (5.6)
Sex (percentage women)	67	69	69	72
Marital status				
Percentage living together	66	64	72	76
Education				
Percentage primary	19	20	21	19
Percentage secondary	70	72	70	72
Percentage higher	11	8	9	9
Body mass index (mean and SD)	26.9 (3.6)	27.2 (3.8)	27.7 (3.7)	27.9 (3.9)
Percentage with extra mobility problems	67	69	71	72
Percentage Kellgren score in hip or knee* $\geqslant 2$	44	46	51	57
Percentage that had attended physiotherapist	52	63	64	78
Percentage regular use of painkillers	19	22	27	34
Percentage chronic pain	31	34	42	47
VAS pain (mean and SD)	29.9 (22.1)	31.1 (22.6)	32.7 (23.7)	32.5 (22.8)
SIP physical disability(mean and SD)	3.9 (6.1)	4.2 (6.4)	4.2 (6.3)	4.5 (6.4)
SIP psychosocial disability (mean and SD)	3.8 (6.6)	4.0 (6.8)	4.0 (7.0)	3.1 (4.9)

*Prevalence ROA of the hip was ±20%.

TABLE 2. Demographics and characteristics of groups (community living subjects aged 55–74 years, with current pain in the hip or knee) that did not pass the filters

	Did not pass level 1 (no visit to GP)	Did not pass level 2 (no reported diagnosis "arthritis")	Did not pass level 2, but with ROA	Did not pass level 3 (no visit to specialist)
Number	33	48	16	37
Age in years (mean and SD)	65.4 (5.6)	64.1 (6.3)	67.3 (5.9)	64.8 (4.7)
Sex (percentage women)	58	69	81	65
Marital status				
Percentage living together	73	63	64	65
Education				
Percentage primary	15	17	19	24
Percentage secondary	61	75	81	68
Percentage high	24*	8	0	8
Body mass index (mean and SD)	25.1 (2.3)**	26.1 (3.6)*	27.2 (3.6)	27.4 (3.4)
Percentage with extra mobility problems	58	65	50	68
Percentage Kellgren score in hip or knee* $\geqslant 2$	36	33*	100	40
Percentage that had attended physiotherapist	0	63	44	38**
Percentage regular use of painkillers	6*	10*	19	13*
Percentage chronic pain	18	17**	19**	32
VAS pain (mean and SD)	24.2 (18)	27.5 (19.8)	25.7 (20.4)	33.1 (25.7)
SIP physical disability (mean and SD)	2.5 (3.6)	4.1 (6.8)	5.4 (8.9)	3.7 (6.1)
SIP psychosocial disability (mean and SD)	3.0 (5.3)	4.2 (6.4)	6.2 (7.2)	5.6 (9.7)

Comparison with persons that passed the level (see Table 1).
*$P<0.05$; **$P<0.004$ (Bonferroni correction).

the filter ($\chi^2=12.6$, df=2, $P=0.002$). Also, indications were found for less ROA ($\chi^2=4.3$, df=1, $P=0.04$), a lower BMI ($F=5.9$, $P=0.02$), and a lower usage of painkillers ($\chi^2=5.1$, df=1, $P=0.02$). A stepwise logistic regression analysis with diagnosis of OA as a dependent variable and the same variables as on level 1 as independent variables (now including attendance of a physiotherapist) was carried out. Pain chronicity was the only significant predictor with odds ratios of 4.87 (contrast chronic pain vs sporadic pain; CI=2.98–7.97) and 1.93 (contrast episodic pain vs sporadic pain; CI=1.25–3.00).

Level 3: attendants of GP with a (self-)reported diagnosis of "arthritis"

Of the people who attended the GP, 105 persons (69%) reported that their complaints were diagnosed by the GP as "arthrosis", "arthritis", "rheumatism", "wear-and-tear" or "aging". The most mentioned reported cause of their complaints was "wear-and tear" of the joints. About half of the group with a reported diagnosis of "arthritis" actually had ROA. A substantial number of the subjects ($n=44$, 42%) had chronic pain symptoms, and one-third used painkillers on a regular basis. Sixty-seven people (64%) had attended a physiotherapist for these complaints. Twelve people (11%) had also consulted an alternative therapist. The mean pain severity was moderate (VAS pain 33%).

However, there was a subgroup of 16 patients (33%) who were not diagnosed as having arthritis but who were in pain and who actually had ROA (in combination, these were positive criteria for the diagnosis OA according to the criteria of Altman *et al.* [23,24]). This group is described in Table 2. Compared to the people who passed the level 2 filter, the people in this group had fewer chronic pain symptoms ($\chi^2=12.7$, df=2, $P=0.002$). Eight people (50%) had visited a specialist (four people reported "meniscus injury" as a diagnosis). This small group had a relatively high mean level of psychosocial disability. One person reported having visited an alternative therapist. Logistic regression with the (missed) diagnosis of OA as a dependent variable showed that significant predictors were pain chronicity (odds ratio episodic pain vs sporadic pain 0.14, CI=0.06–0.34; chronic pain vs sporadic pain 0.11, CI=0.05–0.26), and psychosocial disability (OR 1.07, CI=0.97–1.11).

Level 4: attendants of the specialist

Most people with a reported "arthritis" diagnosis made by the GP were referred to a specialist (68 subjects, 65%). The characteristics of this group are given in the last column of Table 1. The group as a whole was characterized by moderate levels of pain and disability. All people reported that the specialist (usually an orthopedic surgeon or a rheumatologist) had made a diagnosis of arthritis. One person had an arthroplasty of the right knee, five people had a new left hip and three had a new right hip. Fifty-three people (78%) had attended a physiotherapist for their complaints. Ten patients (15%) also visited an alternative therapist for help.

The characteristics of the group that did not pass the level 3 filter (diagnosis "arthritis" but no referral to a specialist) are given in Table 2. This group attended a

physiotherapist less often than people who passed the filter ($\chi^2 = 16.7$, df = 1, $P = 0.00$). This group also made less regular use of painkillers ($\chi^2 = 5.0$, df = 1, $P = 0.02$). Although not significantly different, a relatively high level of psychosocial disability was found compared to that of the group that was referred to a specialist (compare Table 1). Two people (5%) reported visiting an alternative therapist. A stepwise logistic regression analysis with referral to a specialist as a dependent variable showed that attendance of a physiotherapist was the only significant predictor with an odds ratio of 5.60 (CI = 3.45–9.09).

Comparison of the study population with a reference group

A small group of people who visited the GP had a reported diagnosis of "arthritis" and a regular usage of painkillers and was therefore more or less comparable to the reference group. This special group ($n = 28$) contained many people with "extra mobility problems" (22, 79%) who received physiotherapy (20, 71%) and who had chronic pain symptoms (17, 61%), severe pain (mean VAS pain; 12, 43%) and relatively high disability levels (on the physical as well as the psychosocial dimension). The group differed from the reference group with respect to demographic characteristics: gender (68% women vs 88% in the reference group) and education (23% primary education vs 42% in the reference group) (Table 3). Disability and age were related in the reference group. A two-way ANOVA (main effects group and gender with covariate age) on the levels of pain severity and disability showed no significant differences between the two groups (effect group: pain severity $F = 3.1$, $P = 0.08$; physical disability $F = 0.002$, $P = 0.96$; psychosocial disability $F = 0.05$, $P = 0.82$).

DISCUSSION

The Rotterdam study offered us a unique possibility to study the health care utilization of elderly people with current pain in the hip or knee. From the results it can be concluded that a substantial proportion of these people find their way to a GP or specialist. Most people who visited their GP or a specialist were diagnosed as having a form of "arthritis". People who did not pass the different levels of the filter model for health care utilization were different from those who did with respect to the body mass index (lower), the chronicity of pain (less chronic and episodic pain), and attendance of a physiotherapist (lower). Against our expectation, no statistically significant differences were found in pain severity or the level of disabilities or age. ROA was only important for the diagnosis of "arthritis" by the GP. However, relatively high levels of psychosocial disability were found in a group of subjects with ROA but without a self-reported "arthritis" diagnosis and in the group that was not referred to a specialist. It is possible that these people had difficulties communicating (problems in "commu-

TABLE 3. Demographics and illness-related variables of community living subjects aged 55–74 years with current pain in the hip or knee attending the GP, with regular usage of painkillers and a reported diagnosis of "arthritis"; comparison with a reference group

	Level 3 reported diagnosis "arthritis" + regular usage of painkillers	Level 3 reference group
Number	28	109
Age in years (mean and SD)	64.5 (5.6)	64.8 (5.9)
Sex (percentage women)	68	88
Marital status		
Percentage living together	65	66
Education	23	42
Percentage primary		
Percentage secondary	71	52
Percentage higher	6	6
Body mass index (mean and SD)	27.5 (3.4)	26.5 (3.6)
Percentage with extra mobility problems	79	77
Percentage Kellgren score in hip or knee $\geqslant 2$	54	75*
Percentage that had attended physiotherapist	71	0†
Percentage regular use of painkillers	100	100
Percentage chronic pain	61	—
VAS pain (mean and SD)	43.4 (23.0)	53.2‡ (21.0)
SIP physical disability(mean and SD)	6.0 (6.1)	6.7 (7.6)
SIP psychosocial disability (mean and SD)	5.5 (7.8)	5.4 (7.1)

—: unknown
*$n = 82$ with ROA, no X-rays available from 27 respondents
†Selected on no recent attendance
‡$n = 96$.

nication" are an important part of the psychosocial SIP score) with their GP about their (often only "sporadically" occurring) complaints. The findings suggest that the chronicity of pain is the most important determinant of health care utilization by people with arthritis of the hip or knee. The chance of passing the second filter was almost five times higher for people with chronic pain (OR 4.87) and twice as high for people with episodic pain (OR 1.93). Obviously, sporadically occurring complaints are not a reason to think of arthritis, whereas repeated complaints—although often not severe and without radiological evidence—lead to help-seeking behavior and identification of arthritis. The odds ratio of 1.24 for people with a relatively higher BMI attending the GP is a significant but not very relevant finding. Perhaps this result is due to the fact that obesity is related to other chronic diseases, such as diabetes, and leads to relatively more visits to the GP, where arthritis is treated as a secondary complaint. The relatively high odds ratio of attendance of a physiotherapist in the prediction of passing level 3 of the model can be due to differences in referral habits between GPs. It is known that, in the Netherlands, referrals to physiotherapists and specialists can vary between 11% and 27% of patients with OA [10].

There is sometimes disagreement about the diagnosis of OA made by a GP and by a rheumatologist [32]. Unfortunately, there is also little consensus on the definitions and criteria for OA [33]. In the Netherlands, no standards for diagnoses and treatment are available. We tried to correct for a possible overdiagnosis of inflammatory arthritis by taking the reported diagnoses "arthritis" and "rheumatism" into account in addition to the diagnosis "arthrosis". The reported diagnosis had little to do with OA as defined by the ROA criterion (objectively measured cartilage damage): only half of the patients with reported arthritis actually had ROA.

The proportion of GP patients with arthritis who used painkillers on a regular basis (only a small group) was compared with that of a reference group of patients with a clinical diagnosis of OA who used NSAIDs. The reference group included more relatively poorly educated women, and more ROA was present. The mean pain severity was higher (although not significantly so, $P=0.08$). This is probably because the people with OA in the reference group were selected to participate in a drug trial. The levels of physical and psychosocial disability and the percentage of patients with extra mobility problems were very much the same. These findings support the validity of the results of the present population-based study in which self-reported diagnoses were used.

The power to detect between group differences in variables that had large standard deviations, such as pain severity and disability, was low, due to the relatively small numbers. Although statistically significant with $\alpha<0.05$, some results (such as differences in education and use of painkillers) should be treated with care because a large number of tests were carried out. We solved this problem by making a Bonferroni correction and logistic regression analyses. Another limitation of the study was that the diagnoses were reported by the respondents and were not verified by their doctors. It was also not clear as to which criteria (Altman or WONCA) the doctor had used to reach a diagnosis. For this reason, we included the reference group of diagnosed patients. The results of the comparison with this group showed that our results are, in all probability, generalizable to patients in the Netherlands.

The prevalence of current pain in our study was comparable with that of the study on knee pain by McAlindon *et al.* [34] (males 22%, 95% confidence intervals: 10–41; females 26%, 95% confidence intervals: 16–38). In the Netherlands, the most commonly prescribed therapies for peripheral OA are painkillers (especially NSAIDs, 83%) and referral to a physiotherapist (63%) or specialist (46%) [35]. Referrals to physiotherapists and specialists in our study were comparable with these findings. However, in our study, there was less regular use of painkillers. It is possible that painkillers were prescribed by a doctor, but not used by the patient. The indication that women with a relatively high education visit their doctor less for their complaints than other women is consistent with the results of the study by Dexter and Brandt [36]. Perhaps this group is more able to cope with their complaints or has greater access to other resources that affect health (higher income, better housing situation and a more balanced diet). It should be noted that the Dutch health care insurance system enables people with lower incomes to use health care services without extra payment.

The group with "arthritis" that was referred to the specialist was approximately 10% of the total group in our representative sample of elderly subjects ($n=691$). This percentage may be an underestimation due to selection bias against older and more disabled individuals in the sampling procedure. People with arthritis visit their GP several times a year, and a physiotherapist almost ten times. This study was not designed as a cost-effectiveness study, in that case, we should have to pay attention to costs of medication, transportation and loss of jobs. In the Netherlands, the costs of a visit to a GP are approximately Dfl 32 ($19), a visit to a physiotherapist Dfl 30 ($18) and a visit to a specialist Dfl 52 ($30). Thus, in terms of costs and time, and generalizing to this age group in the general population (a group that is growing rapidly), this means that a huge amount of money is spent on the care of people with (pain) symptoms caused by arthritis. This is in agreement with the results of a study by Badley *et al.* on musculoskeletal disorders and health care utilization [37]. In fact, GPs and specialists have relatively few instruments (for example, prescribing painkillers and referral to a physiotherapist) to relieve pain and the impact of pain. The same result was reported by Cronan *et al.* [38] in the US: "many of our participants reported being told by doctors and other health care providers that there is not much treatment available for

OA patients besides prescribing anti-inflammatory drugs" (p. 71). Cronan *et al.* also found that the best predictor of health care utilization was prior use of the system. This suggests that if patients pass the threshold to the GP, they keep coming even though no cure is available.

Some patients may also have problems communicating their complaints to their doctor. The GP should be aware of this problem. Freeman *et al.* [11] state that "the ability of the physician to communicate with a patient who has a chronic disease is important to improving the quality of health services" (p. 144).

As we have shown in this paper, patients with OA are using a lot of health care services. These services have associated costs as we mentioned and as was reported by others [15,16]. Recent work by Mazzuca *et al.* [39] showed that self-care education can reduce health care utilization and costs for patients with OA of the knee. We advocate that professional look at possibilities in the field of health promotion interventions to increase a patient's self-management ability and efficacy of coping with pain. In this way, it may be possible to decrease the utilization of health care resources by patients with arthritic pain in the hip or knee, especially of those with chronic symptoms, but without severe disability or severe pain.

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